Remarks:

Applicant has amended the specification to clarify certain terminology in response to the Examiner's comments. Specifically, Applicant has replaced the term "Polyacrylimide" with "Polyacrylamide", and has amended "overflow 140" to "fluid return 140" within the specification.

Applicant has also amended the claims. Claims 1-7 are withdrawn. Claim 11 has been cancelled. Claims 8, 10, 15, and 17 have been amended. New claims 21 through 24 have been added, which depend from claim 8.

In response to the Examiner's proposed grouping of the claims and requirement for restriction to one group, Applicant affirms that Group II (claims 8-20) is elected with traverse for prosecution in the present application. Claims 1-7 are hereby withdrawn from consideration as directed to a non-elected invention. Applicant retains the right to re-present these claims in a divisional application at a later date.

In response to the Examiner's objections to certain terms within the disclosure, Applicant has amended paragraph [0042] to correct the spelling of the term "polyacrylamide". Applicant has also amended paragraphs [0056], [0066], and [0067] to clarify that reference character 140 denotes a fluid return. Although Applicant had originally labelled this reference character as "overflow", Applicant submits that "fluid return" may provide more clarity and is consistent with the functional description of this element within the specification.

The Examiner has objected the dependency of claim 11. Applicant has cancelled claim 11.

The Examiner has objected to claim 12, indicating that the term "said means inlet" lacks clear antecedent basis. Applicant has amended the claim to recite "said inlet", which does have clear antecedent basis in claim 8.

Remarks Related to Objections under 35 USC 102 and 103

The Examiner has objected to claims 8-16 as anticipated by Cuvillier et al. Applicant has amended claim 8 to clarify that the guiding means are for guiding agglomerated slurry solids from the inlet directly to the outlet. Applicant has also added new claims 21 through 24, which depend from claim 8. It is submitted that the claims are distinguished over US 4,048,069 to Cuvillier.

Briefly, the Cuvillier reference teaches that "the smallest diameter ring 7 has a closed bottom 9" (page 2, line 37-38). Slurry solids and fluids entering at the inlet 8 meet the closed bottom 9, are dispersed, and are then circulated through a series of rings to permit settling of solids at the bottom of the tank, while fluids are clarified and removed through a top drain. This defines a simple decantation process in which the rings are provided simply to increase the residence time of fluids within the tank to permit gravity-assisted settling of solids, which accumulate at the bottom of the tank.

Applicant has found that significant advantages may be achieved by guiding agglomerated slurry solids directly to the outlet. In Applicant's system as defined by claim 8, there is no barrier between the inlet and the outlet that would cause dispersion of the slurry solids. Therefore, solids that have already agglomerated within the slurry stream are directed immediately to the outlet. With reference to Applicant's description at paragraph [0034]:

> The prior art teaches away from aiming the stream of separated solids and fluids directly at the solids outlet... The prior art teaches extending residence time in a settling tank using a series of baffle members primarily as baffles that interrupt the movement of blended fluids and solids for the purpose of mechanically separating solids and fluids, disadvantageously distributing the solids along the bottom of the settling tank.

This is confirmed by the disclosure of Cuvillier at page 2, lines 40-44:

> Rings 4, 5, and 6 do not extend downwardly to the bottom of the main body 1. The lower edges of cylindrical rings 4, 5, and 6 are situated on one or more planes but should leave a sufficiently large free space between said rings and the conical bottom 2.

This "free space" in Cuvillier's system causes solids to simply settle from the slurry fluid circulating within the rings, coming to rest against the bottom of the tank. As the bottom of the Cuvillier tank is conical, the solids simply slide or drop towards the outlet and are not concentrated or compacted at the outlet to any significant extent. Therefore, in practice, the solids removed from the Cuvillier tank will include a significant amount of fluid. In practice, a series of centrifuging or otherwise purifying steps are required following removal of settled products from the tank outlet.

In contrast, Applicant's system actively concentrates solids at the outlet by stacking solids over the outlet. As defined by Applicant's new claim 21, Applicant's system may include a baffle assembly of concentric cylinders for guiding the agglomerated slurry solids directly to the outlet, for concentrating slurry solids over the outlet, and for interrupting the flow of slurry fluid from the inlet to the fluid drain. The purpose of Applicant's cylinders is not primarily for increasing the residence time of fluids as they pass from the inlet to the drain. Applicant's cylinders define a series of concentrating chambers in which solids will accumulate over the outlet.

This is further clarified by Applicant's new claims 22 and 23. Applicant's cylinders preferably include a further open conical portion extending towards the outlet, thus defining a series of concentric concentrating chambers that narrow towards the outlet. As such, slurry solids from the inlet will be guided directly to the outlet, and any slurry fluids that overflow the central guiding cylinder will enter the next cylinder, etc. As a result, in each cylinder, solids will be concentrated at the bottom thereof where the cylinder is narrowed, applying further pressure to the solids already present at the outlet. Therefore, in Applicant's system, solids within each concentrating chamber are concentrated over, and apply pressure against, solids at the outlet. This leads to compaction of solids against the outlet and tank bottom, preventing access to the outlet by slurry fluid.

It is evident that the bottom portion of the Cuvillier tank at steady state will experience a significant degree of disturbance and will not be compacted to the extent provided by Applicant's system, as the fluid circulating within the rings is not physically separated from solids settling at the outlet. Moreover, as solids collect in the Cuvillier tank free space, they become spread against the conical tank bottom. By contrast, in Applicant's system, as solids build up, they are concentrated directly over the outlet, providing compaction and fluid removal from these concentrated solids. Applicant has experienced significant commercial success due to this distinction, as minimal centrifuging of solids removed from the outlet of Applicant's system is required, compared to prior systems such as Cuvillier.

With reference to claim 23, Applicant has clarified the embodiment in which there is minimal free space between the baffles and the tank bottom. This contributes directly to the concentrating and compaction of solids at the outlet, as described above.

Although Cuvillier contemplates frustoconical rings, as in Cuvillier Fig. 4, Applicant notes that the bottoms of the rings do not match the conical surface of the tank bottom, and therefore cannot achieve the minimal gap taught by Applicant's disclosure. In fact, as stated above,

Cuvillier teaches that a "free space" is required between the rings and the tank bottom. As a result, Cuvillier's rings cannot hold and compact solids over the outlet in the manner achieved by Applicant's claimed invention.

Applicant teaches in paragraph [0036] that minimizing the free space leads to advantages associated with the present invention:

> A plugging stack forms from inflowing solids...The baffles are used mainly to promote stacking the solids in a conical mass causing compression of the lowermost solids by those solids uppermost in the mass, which ensures that a relatively concentrated mass of solids is being sent to the centrifuges...a higher average system capacity is achieved, together with reduced utilization of fresh water, flocculating chemical, and centrifuges.

Further, in paragraph [0037]:

> Actively directing those separated solids towards the outlet of the apparatus increases the ratio of solids to fluids proximal the apparatus outlet to downstream centrifuges. With this higher concentration of solids, less fluid reaches the centrifuges such that lower-capacity centrifuges are required to process a given volume of slurry and less power is consumed, thereby also reducing both capital and operational costs.

Applicant has also added new claim 24, which contemplates that the baffles are moveable to adjust the minimal gap. Thus, the ratio of solids concentrated at the outlet to solids concentrated at the base of each cylinder may be adjusted. This feature provides versatility to adjust the steady state condition of the tank contents in a variety of field situations.

Applicant submits that the subject matter defined by claims 8-16 and 21-24 is novel and unobvious over the prior art of record.

Applicant has also amended claim 17 such that the apparatus recited as part of the system of claim 17 corresponds in scope to the apparatus of claim 8. As such, with reference to the above remarks, it is submitted that the Examiner's objection to claims 17-20 as obvious in view of Cuvillier and US 3,523,889 to Eis is now moot.

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Amdt dated March 6, 2006
Reply to Office Action of October 5, 2005

Applicant invites the Examiner to telephone the Applicant's agent Andrew Hicks at (403) 282-9889, should the Examiner wish to discuss the above remarks or the cited art for the purpose of advancing prosecution of the application.

Applicant respectfully requests favourable consideration of the amended application.

Respectfully submitted,

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Enclosures:

1. Petition of an Extension of Time
2. Credit Card Authorization Form